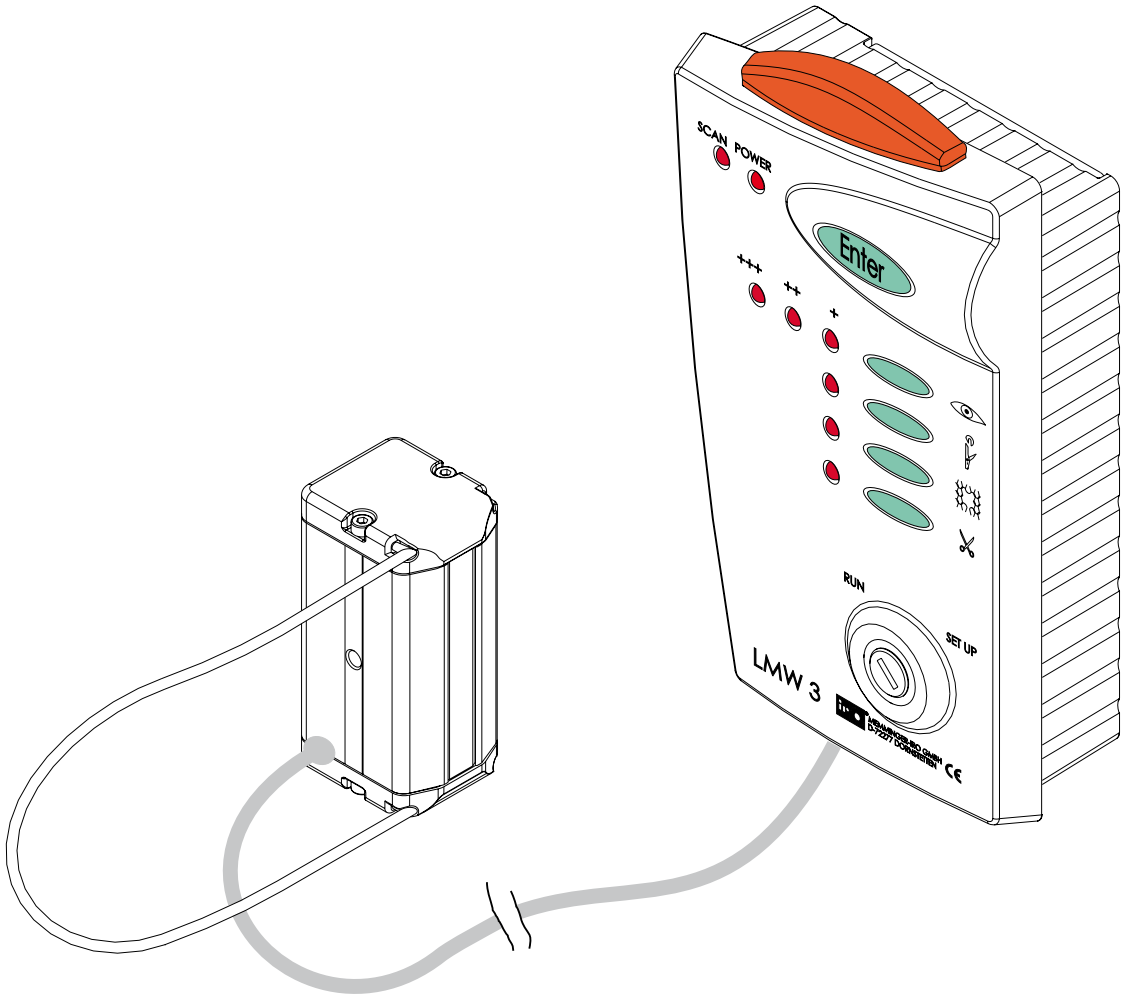
Betriebsanleitung
Operating Instructions
Instructions de service
Instrucciones de uso
Istruzioni per l'uso
Kullanma Kılavuzu
Instruções de utilização
操 作 手 册

LMW 3



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MEMMINGER-IRO GMBH
D-72277 DORNSTETTEN

040-920-008
27.04.10

Preface

We are delighted that you have decided to purchase a MEMMINGER-IRO product.
Please note that the more familiar you are with the product, the better the results achieved with it will be.
Please read these instructions through carefully therefore before putting the unit into service. They contain important information and advice that must be observed when using the equipment.

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General Notes

The fabric scanner LMW 3 is designed exclusively for the opto-electronic monitoring of the fabric being knitted on circular knitting machines.

The user must ensure therefore that the equipment is properly installed, assembled, operated and maintained.

The electrical installation and servicing of the equipment must be carried out by a qualified electrician in accordance with current electrical regulations.

It is important that the individual instructions in the chapter headed Installation be followed.

No special training is required to operate the LMW 3.

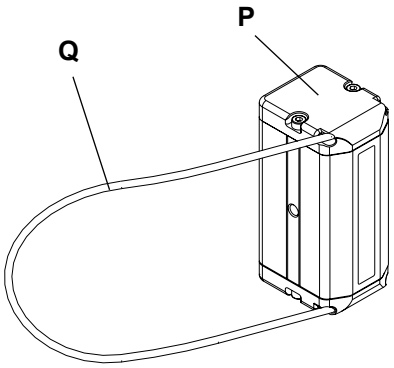
Only original MEMMINGER-IRO spare parts and accessories may be used.

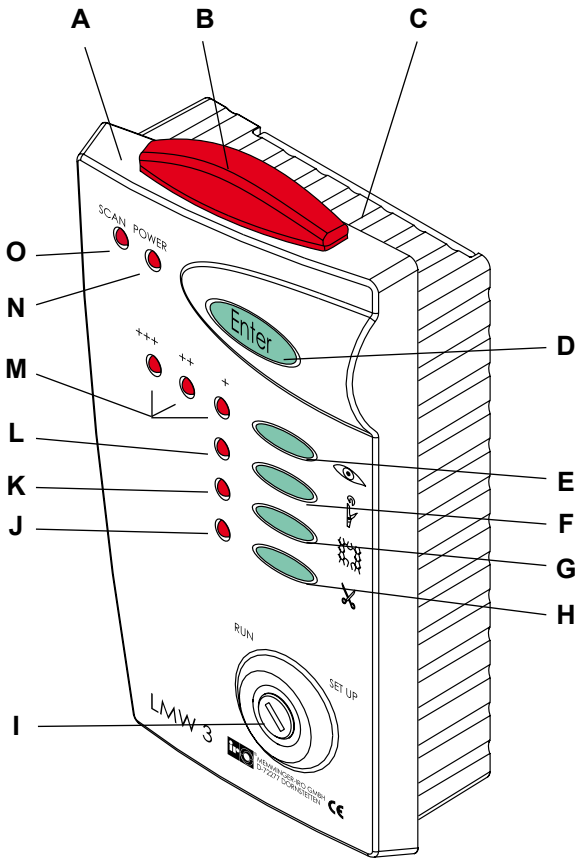
The LMW 3 contains electronic components that can be destroyed by electrostatic discharge if touched directly. Before opening the equipment therefore, measures must be adopted to avoid discharge. Typically this is achieved by touching an earthed object (machine or the earth contact of a socket).

Ensure that unserviceable LMW 3 units are disposed of in accordance with the usual regulations governing the disposal of electrical equipment and electronic components.

No liability will be accepted for damage or malfunction resulting from incorrect operation or improper handling of the equipment.

Control unit components





A - Housing cover
B - Stop lamp
C - Housing
D - ENTER key
E - Sensitivity key
F - On/Off key for longitudinal fault shut-down
G - On/Off key for spot fault shut-down
H - On/Off key for skipping a cutting line
I - Key switch
J - LED for cutting line
K - LED for spot faults
L - LED for longitudinal faults
M - LED's for sensitivity display
N - LED for Power On
O - LED for Scanning On
P - Scanner head
Q - Bow

LMW 3 Functions

The fabric scanner LMW 3 is an electronic device for monitoring fabric being knitted on circular knitting machines. The fabric is continuously monitored for longitudinal faults (e.g. needle breakage) and/or spot faults (e.g. holes), occurring between needle cylinder and the take-down.

As soon as a fault is detected, the machine is stopped and the cause indicated by the shut-down lamp flashing and the relevant LED lighting up.

In the event of an unintentional interruption – e.g. if the scanner head is not in contact with the fabric or is not plugged in at the control unit – the machine will stop and the cause indicated by all LED's flashing.

The scanner head is fitted with light sources and is held in contact with the fabric. The light reflected from the fabric is converted into electronic signals and analysed in the scanner head.

The LMW 3 does not require a machine revolution sensor.

The LMW 3 is automatically adjusted on to the knitted fabric by the scanner head and control unit.

The following settings can be carried out on the control unit:

- Adjustment of the sensitivity in three steps.
- Switching the longitudinal fault shut-down On/Off.
- Switching the spot fault shut-down On/Off.
- Switching the facility for skipping a cutting line On/Off.

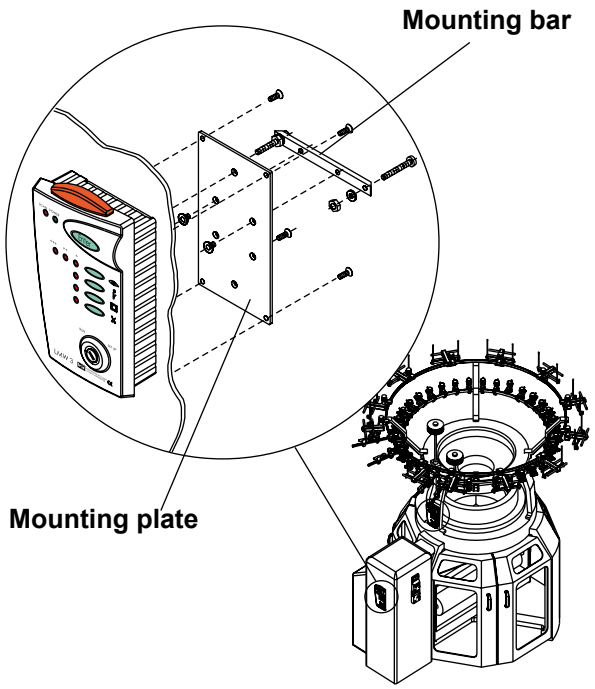
Application Limitations

Machine design:
It must be possible to fit the LMW 3 physically on to the machine.

Fabric structure:
On the monitored side of the fabric, a uniform stitch structure must be visible. If this is not the case (on plush, inlay fabric, or jacquard machines), the unit cannot be set up on this side of the fabric.

A longitudinal or spot fault must be visually distinguishable from the normal fabric structure.

Yarn colour:
When black or other extremely dark yarn, or highly reflective yarn is used, the function will be restricted.



Installing the control unit

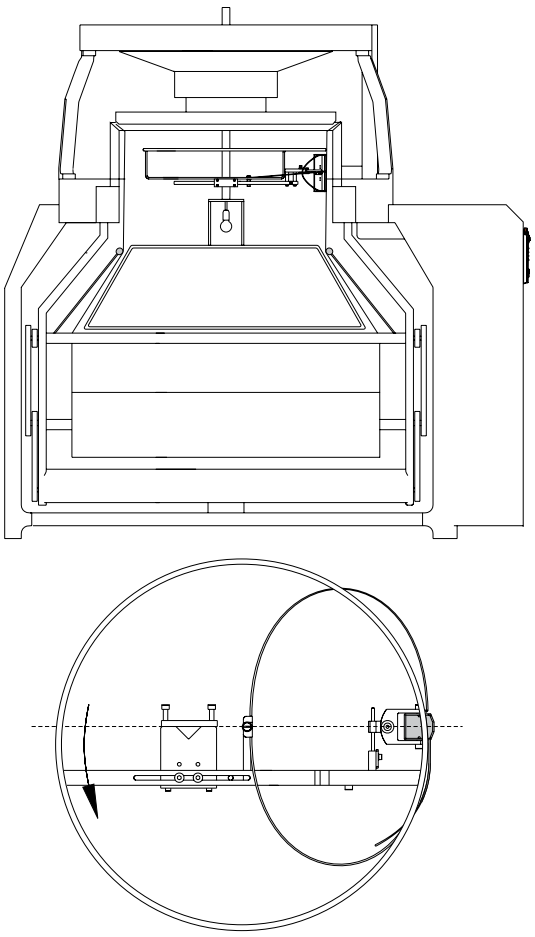
It is recommended that the LMW 3 control unit be fitted into the knitting machine.

- ▶ Identify a suitable position for installing the LMW 3 on the control cabinet for the knitting machine.

  Take the overall size of the LMW 3 into account.
- ▶ Prepare the aperture in the machine control cabinet.
- ▶ Fit the LMW 3 into the aperture.
- ▶ Screw the mounting plate on to the mounting bar.

  The outer screws of the asymmetrical mounting bar must not exert pressure on the LMW 3 housing.
- ▶ Feed the power supply cable in through the back of the housing and press it into the cable clamp.
- ▶ Screw the mounting plate on to the housing.
- ▶ Tighten the mounting bar screws until the LMW 3 is in firm contact with the machine control cabinet.
- ▶ Insert the scanner head cable into the housing. The arrow on the plug must point towards the front of the housing.

Example for a machine running anti-clockwise



Installing the scanner head

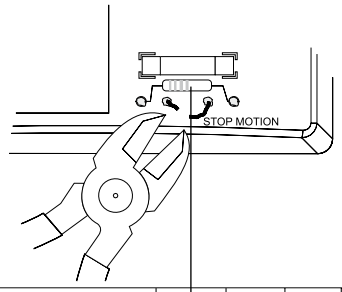
The best performance is achieved by installing the scanner head on to the machine with the MEMMINGER-IRO centring device.

There are different models for different knitting machines:

- Machines running clockwise or anti-clockwise.
- Ring matching the machine diameter.

IMPORTANT!
The scanner head and the mounting of the centring device must be in line.

The ring is not a spreader ring but is for protecting and guiding scanner head. The scanner head must be positioned beneath the ring.



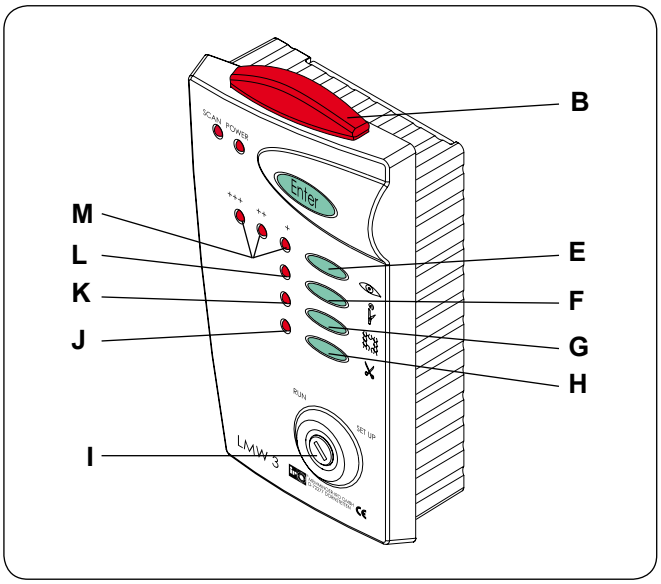
CAMBER 12V → | 1987	100	1,0 W	No. 000.712.024
CAMBER 24V → | 1987	470	0,5 W	No. 000.712.022
CAMBER 24V 1987 |→	1200	0,5 W	No. 000.712.109
FALMAC	—	—	—
JUMBERCA	—	—	—
KEUM YOUNG	—	—	—
MARCHISIO	—	—	—
MAYER & CIE No.17000 |→	1200	0,5 W	No. 000.712.109
MAYER & CIE ab Baujahr 95/96 (nur bei Prozessorgest. Masch.)	—	—	—
MONARCH	100	1,0 W	No. 000.712.024
MORAT	1000	0,5 W	No. 000.712.023
ORIZIO	220	4,0 W	No. 000.712.025
PAI LUNG	470	4,0 W	No. 000.712.100
PILOTELLI	—	—	—
TERROT / ALBI	—	—	—
VANGUARD	220	0,5 W	No. 000.712.021
VIGNONI	—	—	—

Electrical connection

- Connect the LMW 3 as shown in the wiring diagram.
- Depending upon the knitting machine shut-down system, a resistor (see Table) must be soldered into the shut-down (STOP MOTION) circuit.

NOTE!
Before soldering the resistor, the connecting wire between the stop motion soldering points must be disconnected (see wiring diagram). There must be no electrical contact through the wire.

The power supply and the shut-down contact of the unit are protected by reversible fuses. If one of these fuses is tripped by excess current, it can be reset by switching off the power supply (for a min. 2 sec.).



Adjusting sensitivity

- Set key switch (**I**) to SET UP.
- Press key (**E**).

  LED (**M**) + = low sensitivity.
  LED (**M**) ++ = **standard sensitivity**
  LED (**M**) +++ = high sensitivity.

- Set key switch (**I**) to RUN.

Switching longitudinal fault shut-down On/Off

- Set key switch (**I**) to SET UP.
- Press key (**F**).

  LED (**L**) lights up, longitudinal fault shut-down On.
  LED (**L**) does not light up, longitudinal fault shut-down Off.

- Set key switch (**I**) to RUN.

Switching spot fault shut-down On/Off

- Set key switch (**I**) to SET UP.
- Press key (**G**).

  LED (**K**) lights up, spot fault shut-down On.
  LED (**K**) does not light up, spot fault shut-down Off.

- Set key switch (**I**) to RUN.

NOTE!
At least one shut-down (longitudinal or spot fault) must be switched on.

Skipping a cutting line

- Set key switch (**I**) to SET UP.
- Press key (**H**).

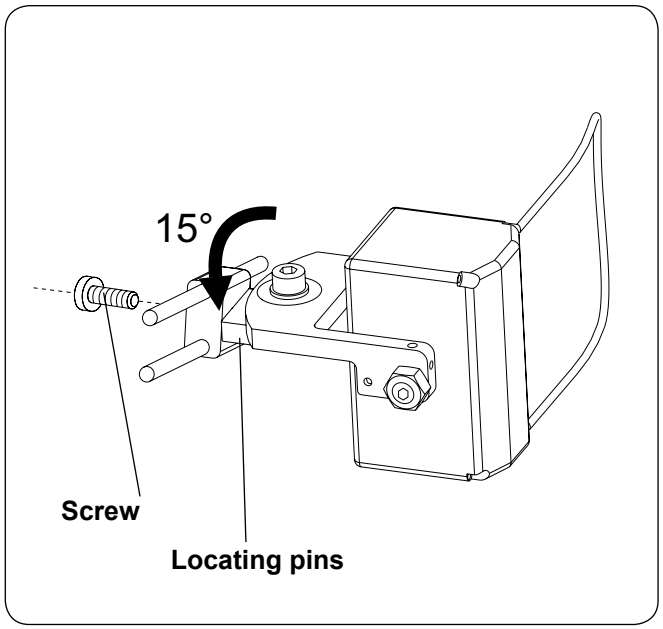
  LED (**J**) lights up, cutting line is ignored.
  LED (**J**) does not light up, cutting line is not ignored.

- Set key switch (**I**) to RUN.

NOTE!
If a cutting line is not skipped, it will be interpreted as a longitudinal fault.

If a cutting line is skipped, but not clearly recognised by the LMW 3, LED (J) and stop lamp (B) will flash. In such a case, an additional needle must be drawn.

On machines with elasthane plating, it may be necessary to draw needles twice in order to ensure that the elasthane yarn is reliably laid into the needle heads.

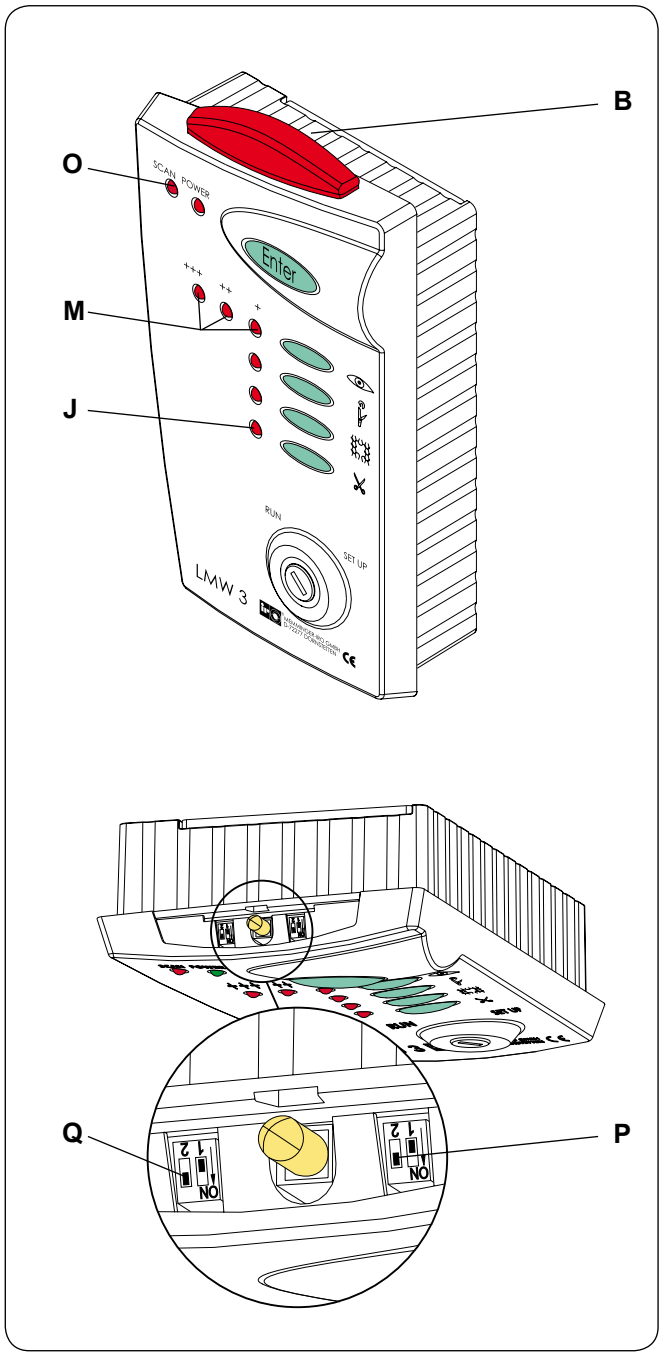


Needle out structures

With regular needle out structures, the LMW 3 can be used for spot fault shut-down.

The following settings are necessary:

- Switch off longitudinal fault shut-down, switch on spot fault shut-down.
- Undo screw, swivel scanner head and snap it in place. Tighten screw.



Striper mode

When using the LMW 3 on a knitting machine with automatic striper facility, the fabric should be monitored with the striper mode.

- Switch the machine off at the main switch.
- Remove the shut-down lamp glass (**B**) by pressing the two sides together and lifting the glass.
- Set switch 2 of the DIP switch (**Q**) to ON.
- Replace the shut-down lamp glass.
- Switch the machine on at the main switch.

A light signal will travel from LED **J** and LED **+++** simultaneously to the LED **+** and back.

- To switch the striper mode off, follow the same procedure as for switching it on. Set switch 2 of the DIP switch (**Q**) to OFF (away from the direction of the arrow, away from ON).

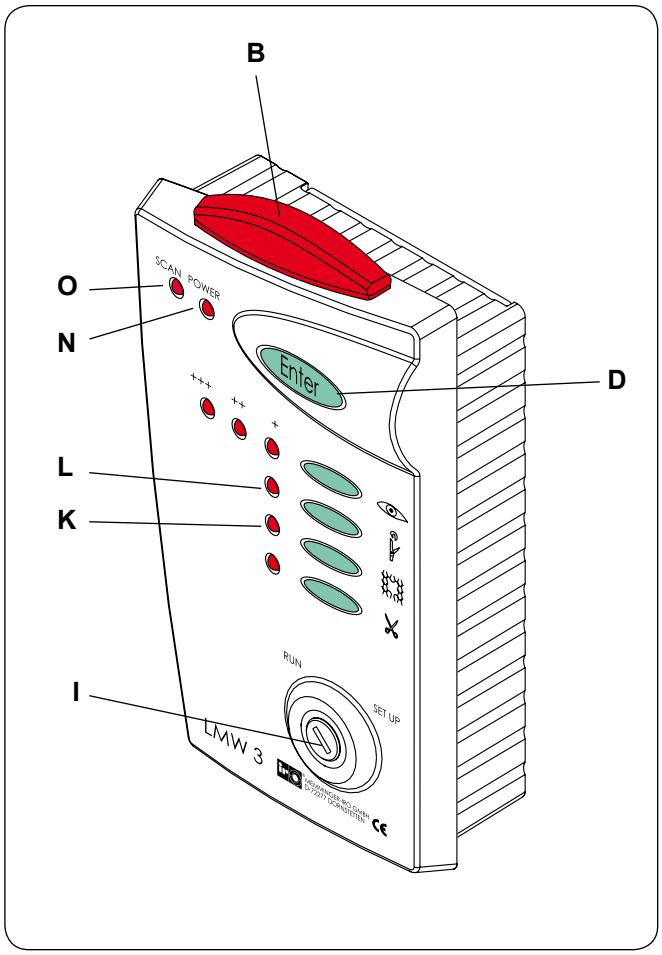
Frequent spot fault mode

The knitting machine will only be shut down if two spot faults occur within one minute.

- Switch the machine off at the main switch.
- Remove the shut-down lamp glass (**B**) by pressing the two sides together and lifting the glass.
- Set switch 2 of the DIP switch (**P**) to ON.
- Replace the shut-down lamp glass.
- Switch the machine on at the main switch.

A light signal will travel from LED **O** to the LED **J** and back. Then all LED's will flash three times.

- To switch the frequent spot fault mode off, follow the same procedure as for switching it on. Set switch 2 of the DIP switch (**P**) to OFF (away from the direction of the arrow, away from ON).



Normal operating condition

When mains power is applied to the LMW 3, the LED ”POWER” (**N**) will light up.

Each time the machine is started up (key switch (**I**) to RUN), the LMW 3 will reset itself. During this procedure, which lasts a maximum of 12 seconds, the fabric will not be scanned for faults.

When a cutting line is present, additional machine revolutions will be necessary for the reset time. As soon as the unit starts scanning the material, the LED ”SCAN” (**O**) will light up.

Displaying the cause of the shut-down

If the shut-down is set to be triggered by longitudinal faults alone, the shut-down lamp (**B**) will flash together with the LED (**L**) when a longitudinal fault is detected. The machine will be shut down.

If the shut-down is set to be triggered by spot faults alone, the shut-down lamp will flash together with the LED (**K**) when a spot fault is detected. The machine will be shut down.

If the shut-down is set to be triggered by both longitudinal and spot faults, the shut-down lamp will flash together with the two LED’s (**K** and **L**) when either a longitudinal fault or a spot fault is detected. The machine will be shut down.

If the scanner head is not in contact with the fabric, all LED’s with the exception of (**O**) and (**N**) will flash. The machine stop will be triggered after 5 minutes.

If the scanner head is unplugged, all LED’s with the exception of (**O**) and (**N**) will flash. The machine will be stopped immediately.

Cancelling fault detection

The machine stop will remain active until the fault has been cancelled by pressing the ENTER key (**D**).

▶ Press the ENTER key.

Fault run-out time

Once the fault has been corrected and cancelled on the LMW 3, the machine can be restarted. In order to prevent the machine being shut down twice for the same fault, the fault detection facility will not be reactivated until the fault has left the area covered by the scanner head.

After the automatic LMW 3 reset when the machine is started up, the unit switches over to fault run-out time. During this period, the shut-down lamp (**B**) and the SCAN LED (**O**) will flash.

Servicing

NOTE!
The correct functioning of the scanner head mounting should be checked from time to time. It should also be checked following every fabric reject.

The scanner head should be able to move freely, and must remain in contact, under light pressure, with the knitted fabric during the complete machine revolution.

Troubleshooting

Fault following installation:	Possible cause:	Action:
• **LMW 3 not functioning.**	• Power supply not properly connected.	• Check power supply connection against wiring diagram.
	• Short-circuit in scanner head extension cable.	• Replace scanner head extension cable.
	• Scanner head extension cable poles reversed.	• Connect scanner head extension cable correctly.
	• Defective fuse.	• Replace fuse.
	• LMW 3 is defective.	• Replace LMW 3.
• **Knitting machine fails to stop upon fault detection.**	• Machine shut-down not correctly connected.	• Check machine shut-down against wiring diagram.
• **Knitting machine no longer starts following connection of the LMW 3.**	• Machine shut-down not correctly connected.	• Check machine shut-down against wiring diagram.

Fault / Message during operation:	Possible cause:	Action:
• **All LED's and the shut-down lamp (B) flash. The machine is shut down.**	• Scanner head not plugged in on control unit.	• Plug scanner head in on control unit.
	• Scanner head not in contact with fabric.	• Fit scanner head correctly.
• **All LED's flash quickly (8x/ second)**	• Scanning head version (software) is not suitable for the control device software.	• Replace the scanning head.
• **LED (J) and the shut-down lamp (B) flash. The machine is shut down.**	• Scanner head not clearly recognised.	• With draw several needles so that the cutting line is clearly detectable (see Setting Up).
• **Cutting line is within range but, with a longitudinal fault, the cutting line is recognised as a fault.**	• LMW 3 detects longitudinal fault better than cutting line.	• Form the cutting edge so that it is more readily detected than a longitudinal fault, e.g. 2 needles, with plated fabrics 2 x 2 needles.
• **All LED's and the shut-down lamp (B) flash. The machine is shut down.**	• Scanner head not in contact with fabric for at least 5 minutes.	• Reposition scanner head on the fabric surface.
• **LMW 3 triggers a shut-down with the machine stationary.**	• LMW 3 confuses extraneous light from filament or fluorescent lamp with a running machine.	• Screen off internal machine illumination. • Screen off scanner head from extraneous light.
• **LMW 3 remains inactive with machine running; machine shuts down after 3 minutes.**	• Material has no cutting line but cutting line has been set on the LMW 3.	• Switch cutting line off.

IMPORTANT!
Each knitting machine shut-down triggered by the LMW 3 must be cancelled with the ENTER key (I).

Technical Data

Nominal voltage:	24 V AC 50/60 Hz
Voltage range:	19 - 33 V AC 50/60 Hz
max. power consumption:	10 VA
Input fuse:	Cartridge fuse 500 mA slow-blow
Ambient temperature:	+ 10° to + 50° C
Weight (without packing):	640 g

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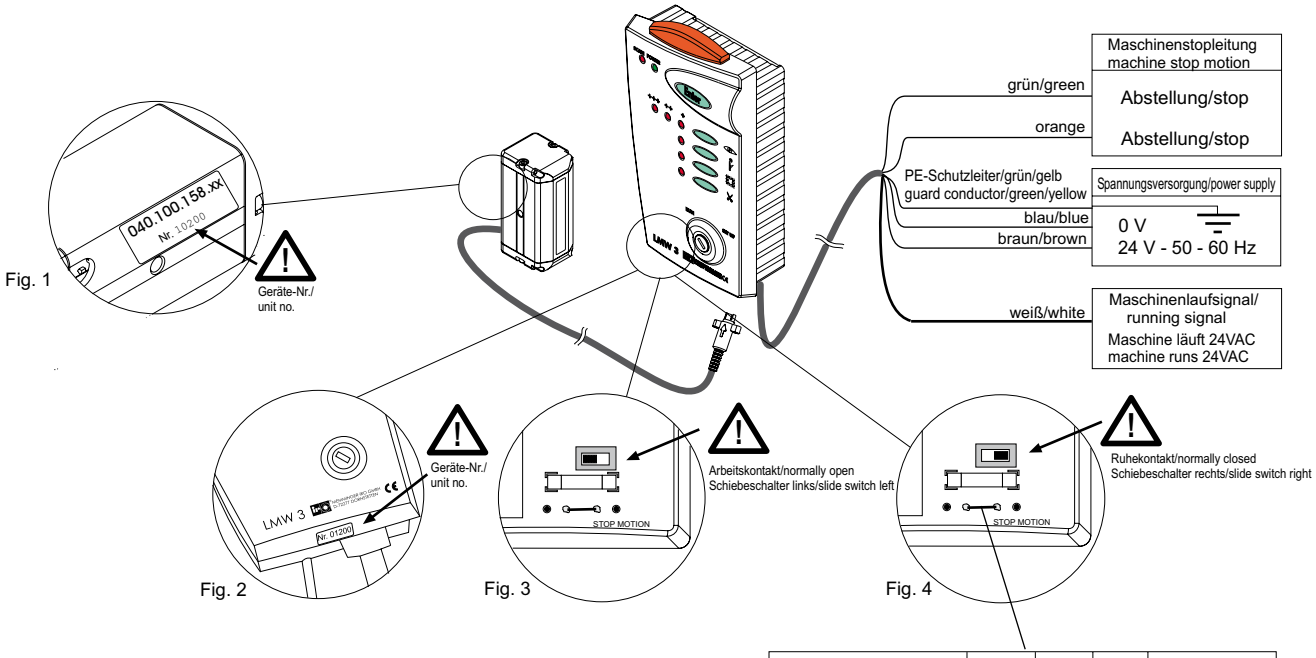
Wiring diagram



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CAMBER 24V → | 1987		470	0,5 W	No. 000.712.022
CAMBER 24V 1987 |→		1200	0,5 W	No. 000.712.109
FALMAC		—	—	—
JUMBERCA		—	—	—
KEUM YOUNG		—	—	—
MARCHISIO		—	—	—
MAYER & CIE No.17000 |→		1200	0,5 W	No. 000.712.109
MAYER & CIE ab Baujahr 95/96 (nur bei Prozessorgest. Masch.)		—	—	—
MONARCH		100	1,0 W	No. 000.712.024
MORAT		1000	0,5 W	No. 000.712.023
ORIZIO		220	4,0 W	No. 000.712.025
PAI LUNG		470	4,0 W	No. 000.712.100
PILOTELLI		—	—	—
TERROT / ALBI		—	—	—
VANGUARD		220	0,5 W	No. 000.712.021
VIGNONI		—	—	—

NOTE!
Please observe the following changes for the subsequently listed unit numbers or higher numbers (Fig. 1/Fig. 2):

LMW 3 control unit as of unit no. 1200

60 mm scanner head, 3 m cable as of unit no. 800

60 mm scanner head, 0.65 m cable as of unit no. 10200

90 mm scanner head, 3 m cable as of unit no. 20200

90 mm scanner head, 0.65 mm cable as of unit no. 30200

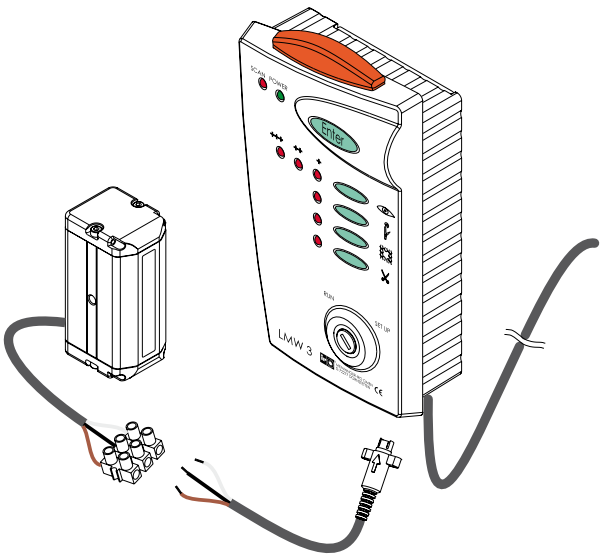
1. A machine running signal must be additionally connected, i.e. during operation, 24 V AC are applied to the machine.

The machine running signal is connected to the white wire.

2. The machine stop mechanism is only connected to the green and orange wires.

The control unit is delivered with a machine stop mechanism featuring a normally open contact as a standard. The slide switch is in the left position (Fig. 3).

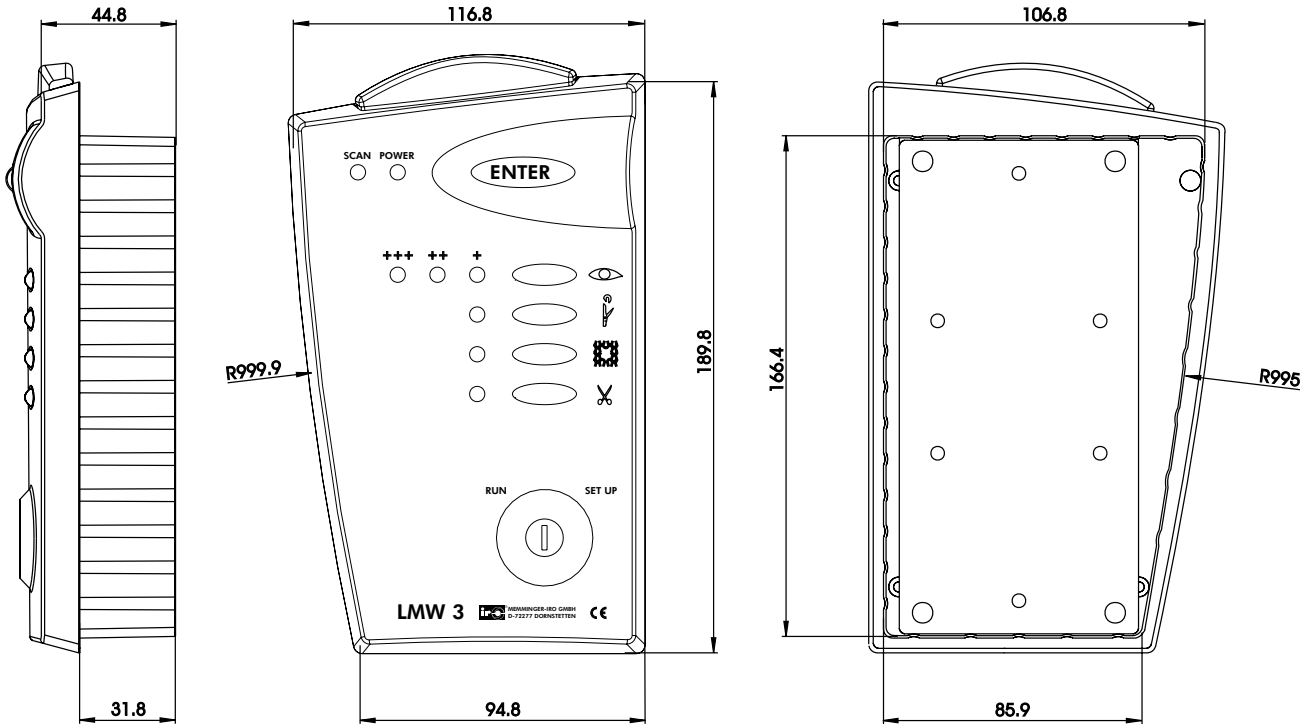
If the control unit is connected to a machine stop mechanism with normally closed contact, the slide switch must be in the right position (Fig. 4).



Wiring Diagram for Middle Installation

Note!
The shield must always be connected.

Dimensioned drawing



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